

## WHAT IS CLAIMED IS:

1. A model of dental caries, comprising:

an artificial tooth, wherein the artificial tooth comprises a cavity, and wherein the  
5 cavity comprises:

an opening that extends from an exterior surface of the artificial tooth to at  
least a simulated dentinoenamel junction of the artificial tooth; and

wherein the opening extends along at least a portion of the simulated  
dentinoenamel junction; and

10 simulated decay material in the cavity.

2. The model of dental caries of claim 1, wherein the opening contains simulated  
decay material.

15 3. The model of dental caries of claim 1, wherein the opening comprises one or  
more grooves along the simulated dentinoenamel junction.

4. The model of dental caries of claim 1, wherein the opening comprises one or  
more grooves, and wherein at least one of the grooves contains simulated decay material.

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5. The model of dental caries of claim 1, wherein the artificial tooth comprises resin.

6. The model of dental caries of claim 1, wherein the artificial tooth comprises  
melamine resin.

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7. The model of dental caries of claim 1, wherein a surface defined by the cavity is  
configured to bond to the simulated decay material.

8. The model of dental caries of claim 1, wherein a surface defined by the cavity is  
30 textured.

9. The model of dental caries of claim 1, wherein a surface defined by the cavity is textured with an etching solution.

10. The model of dental caries of claim 1, wherein a surface defined by the cavity is textured with an etching solution, and wherein the etching solution comprises an acid.

11. The model of dental caries of claim 1, wherein the simulated decay material comprises a resin material.

12. The model of dental caries of claim 1, wherein the simulated decay material comprises a porous substance.

13. The model of dental caries of claim 1, wherein the simulated decay material comprises a porous substance, and wherein the porous substance comprises pumice.

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14. The model of dental caries of claim 1, wherein the simulated decay material comprises coloring.

15. The model of dental caries of claim 1, wherein the simulated decay material comprises food coloring.

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16. The model of dental caries of claim 1, wherein the simulated decay material is homogeneous.

17. The model of dental caries of claim 1, wherein the simulated decay material is curable.

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18. The model of dental caries of claim 1, wherein the simulated decay material is light curable.

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19. The model of dental caries of claim 1, wherein the simulated decay material is curable with visible light.

20. The model of dental caries of claim 1, wherein the simulated decay material is  
5 detectable by caries detecting stain.

21. The model of dental caries of claim 1, wherein the simulated decay material is radiolucent.

10 22. The model of dental caries of claim 1, wherein the simulated decay material is radio-opaque.

23. The model of dental caries of claim 1, wherein the simulated decay material is of uniform hardness.

15 24. The model of dental caries of claim 1, wherein an outer layer of simulated decay material is softer than an inner layer of simulated decay material.

25. The model of dental caries of claim 1, wherein an inner layer of simulated decay  
20 material has a greater hardness than an outer layer of simulated decay material.

26. A model of dental caries, comprising:  
an artificial tooth, wherein the artificial tooth comprises a cavity, and wherein the cavity comprises:

25 an opening that extends from an exterior surface of the artificial tooth to at least a simulated dentinoenamel junction of the artificial tooth; and  
one or more grooves extending from the opening; and  
simulated decay material in the cavity.

30 27. The model of dental caries of claim 26, wherein the opening contains simulated decay material.

28. The model of dental caries of claim 26, wherein at least one of the grooves extends along at least a portion of the simulated dentinoenamel junction.

5 29. The model of dental caries of claim 26, wherein at least one of the grooves extends along at least a portion of the simulated dentinoenamel junction, and wherein at least one of the grooves contains simulated decay material.

10 30. The model of dental caries of claim 26, wherein the artificial tooth comprises resin.

31. The model of dental caries of claim 26, wherein the simulated decay material is radiolucent.

15 32. The model of dental caries of claim 26, wherein the simulated decay material is radio-opaque.

33. The model of dental caries of claim 26, wherein the simulated decay material is of uniform hardness.

20 34. The model of dental caries of claim 26, wherein an outer layer of simulated decay material is softer than an inner layer of simulated decay material.

35. The model of dental caries of claim 26, wherein an inner layer of simulated decay material has a greater hardness than an outer layer of simulated decay material.

36. A method comprising:  
forming a cavity in an artificial tooth, wherein the cavity comprises:  
an opening extending from an exterior surface of the artificial tooth to at  
30 least a simulated dentinoenamel junction of the artificial tooth; and

wherein the opening extends along at least a portion of the simulated dentinoenamel junction; and  
applying simulated decay material to the cavity.

5     37.     The method of claim 36, further comprising forming one or more grooves in the opening.

38.     The method of claim 36, further comprising forming one or more grooves in the opening, wherein at least one of the grooves is formed with a wheel bur.

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39.     The method of claim 36, wherein applying the simulated decay material to the cavity comprises comprising applying the simulated decay material to the opening.

40.     The method of claim 36, further comprising forming one or more grooves in the opening and applying simulated decay material to at least one of the grooves.

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41.     The method of claim 36, wherein the artificial tooth comprises resin.

42.     The method of claim 36, wherein the artificial tooth comprises melamine resin.

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43.     The method of claim 36, further comprising applying an etching solution to a surface defined by the cavity, and wherein the etching solution comprises an acid.

44.     The method of claim 36, further comprising applying an etching solution to a surface defined by the cavity, wherein the etching solution comprises an acid, and further comprising rinsing the etching solution from the cavity.

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45.     The method of claim 36, further comprising applying a bonding substance to a surface defined by the cavity.

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46. The method of claim 36, further comprising applying a bonding substance to a surface defined by the cavity and curing the bonding substance.

47. The method of claim 36, further comprising applying a bonding substance to a  
5 surface defined by the cavity and curing the bonding substance with light.

48. The method of claim 36, further comprising applying a bonding substance to a surface defined by the cavity and curing the bonding substance with visible light.

10 49. The method of claim 36, further comprising applying a bonding substance to a surface defined by the cavity, and wherein the bonding substance comprises a liquid resin.

50. The method of claim 36, wherein the simulated decay material comprises a resin  
15 material.

51. The method of claim 36, wherein the simulated decay material comprises a porous substance.

20 52. The method of claim 36, wherein the simulated decay material comprises a porous substance, and wherein the porous substance comprises pumice.

53. The method of claim 36, wherein the simulated decay material comprises coloring.  
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54. The method of claim 36, wherein the simulated decay material comprises food coloring.

55. The method of claim 36, wherein the simulated decay material is homogeneous.  
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56. The method of claim 36, further comprising curing the simulated decay material.

57. The method of claim 36, further comprising curing the simulated decay material with light.

5 58. The method of claim 36, further comprising curing the simulated decay material with visible light.

59. The method of claim 36, wherein the simulated decay material is detectable by caries detecting stain.

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60. The method of claim 36, wherein the simulated decay material is radiolucent.

61. The method of claim 36, wherein the simulated decay material is radio-opaque.

15 62. The method of claim 36, wherein applying the simulated decay material comprises applying simulated decay material of uniform composition in layers.

63. The method of claim 36, wherein applying the simulated decay material comprises applying simulated decay material of varying composition in layers.

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64. The method of claim 36, wherein applying the simulated decay material comprises applying simulated decay material of varying composition in layers, such that an inner layer of simulated decay material is of greater hardness than an outer layer of simulated decay material.

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65. The method of claim 36, further comprising curing the simulated decay material.

66. The method of claim 36, further comprising curing the simulated decay material, wherein curing the simulated decay material comprises successively curing layers of  
30 simulated decay material.

67. The method of claim 36, further comprising curing the simulated decay material, wherein curing the simulated decay material comprises successively curing layers of simulated decay material of varying composition.